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EXAMINER	
SKIBINSKY, ANNA	

ART UNIT	PAPER NUMBER
1631	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/619,227	FAELDT ET AL.	
	Examiner	Art Unit	
	Anna Skibinsky	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) *9,11,12,18,23,24 and 39-41* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10,13-17,19-22 and 25-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3 pages*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Election/Restriction

1. Applicant's election with traverse of Species A5, B1, and C1 (claims 1-6, 10, 13-17, 19-22, 25-38) in the reply filed on April 28, 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. Upon further consideration claim 18 identified as generic in the restriction filed 03/28/2006 is found to read on the non-elected species A3 drawn to transgenic non-human animals.

3. Claims 9, 11, 12, 18, 23,24, and 39-41 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim.

4. Upon further consideration of Applicant's election of Species A5: drosophila, a type of fly which is an animal, claims 6 and 7 will be included in the examination.

5. Claims under examination are 1-8, 10, 13-17, 19-22, 25-38.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claim 1-8, 10, 13-17, 20-22, 25-28, and 35-38 rejected under 35 U.S.C. 102(b) as being anticipated by Bainton et al. (Current Biology, 2000).

2. Claim 1 recites a computer system to asses a biological specimen's physical traits where the system comprises an user interface for inputting specimen information comprising an input associated with a certain sample with a test population of the biological sample and other samples with a reference population of the biological sample. The system further includes an imaging system to identify changes in visible trait data features of the specimen.

3. Bainton et al. teach the study the central nervous system of populations of Drosophila flies exposed to cocaine where one population is the test population that has been treated with 3IY and the other is the reference population that was not treated with 3IY (page 189, col. 1, lines 7-15 and col. 2, lines 11-16; page 190, Figure 3). The motion behavior (i.e. a physical trait) of the flies in a viewing chamber are filmed and the analyzed (page 193, col. 2, lines 13-24) using the Dynamic Image Analysis System (DIAS) to discover that the flies treated with 3IY had a markedly changed behavior as a result of cocaine exposure as compared to the control sample.

4. Claims 2 and 3 recite that the physical trait data comprise movement trait data regarding individual biological specimens where the movement trait data is speed.

5. Bainton et al. show the paths of individual flies where contiguously traced and used as data for analysis and velocities (i.e. speed) and turning is calculated (Table 2; Figure 3; and page 193, col. 2, lines 13-24).

6. Claim 4 recites an animation mechanism to create a "graphically represented animation" of positions and movements of the individual speciments.

7. Bainton et al. teach filming the specimen flies (page 193, col. 2, lines 13-24) to create an animation which was then graphically represented as shown in Figure 3.

8. Claim 5 recites specimen information input which has been grouped to associate certain samples with each other.

9. The trajectory traces shown in Figure 3 are derived from six different samples and have been grouped according to cocaine content for analysis of velocity and turning that appears in Table 2.

10. Claims 6, 7, 8, and 27 recites a specimen which is an animal, a fly, and drosophila for which physical behavior traits are studied.

11. Bainton et al. teach the study of drosophila (see title and Abstract).

12. Claims 13, 14, and 15 recite an interface and imaging system which allows for the input of physical traits related to a type of biological sample and comprises a motion tracking system to produce motion information and behavioral trait data concerning the sample.

13. Bianton et al. teach the use of DIAS as a locomotor tracking system of Drosophila flies exposed and not exposed to cocaine, to generate traces of the paths taken by flies with different physical traits such as +3IY or –3IY and cocaine content (page 193, col. 2, lines 13-24; and Figure 3), and the behavior trait data is such as velocity is calculated for the samples (Table 2).

14. Claims 16 and 17 recites a computer system that stores physical trait data corresponding to each biological specimen which includes sample data.

15. Bainton et al. show that the motion trajectory for each fly from the studied samples can be traced stored and analyzed (Figure 3).

16. Claim 20 and 22 recite an imaging system comprising an image based counter to count the number of specimens in the sample using the image and where the chosen portion of the test and reference physical data comprises all the test data.

17. Bainton et al. teach filming flies and calculating individual motion of each of the flies (page 188, col. 1, line 7 to col. 2 line 23). The motion data for the cocaine and 3IY exposed flies calculated from the film taken at 15 frames per second (page 193, col. 2, lines 13-24).

18. Claim 21 recites a first input mechanism a test biological specimen population, a second input to identify a reference biological specimen population, a trait determining mechanism to produce physical trait data for both populations from the motion tracking system and compare the physical trait data.

19. Bainton et al. teach the study of populations of Drosophila flies where one population is the test population that has been treated with 3IY and the other is the reference population that was not treated with 3IY (page 189, col. 1, lines 7-15 and col. 2, lines 11-16; page 190, Figure 3). The motion behavior (i.e. a physical trait) of the flies in a viewing chamber are filmed and analyzed (page 193, col. 2, lines 13-24) using the Dynamic Image Analysis System (DIAS), a locomotor tracking system, to discover that

the flies treated with 3IY had a markedly changed behavior as a result of cocaine exposure as compared to the control sample.

20. Claims 25 and 28 recites a treatment method to the test population and not made to the reference population where the populations are compared and analyzed to determine if the difference is over a specified threshold and thus if the treatment is effective in mitigating or preventing a central nervous system condition.

21. Bainton et al. teach the treatment of a test population flies with 3IY which causes the synthesis of dopamine in the flies (page 188, col. 2, lines 31). Comparison with the control population (-3IY) showed that dopamine modulates the behavioral response of the flies to cocaine (page 187, col. 1, Conclusions). A pairwise comparison between 3IY treated and not treated flies is shown in Table 2 where the result is that treatment reduces the sensitivity of flies to the locomotor-depressing and circling inducing effects of cocaine (caption of Table 2).

22. Claims 35, 36, 37, and 38 recite a calculating mechanism in the imaging system to calculate path length, velocity, turning and stumbling.

23. Bainton et al. teach the use of DIAS to calculate velocity as a result of path length per second, turning (Table 2) and spasmodic activity, tremor hypokinesis, akinesia which reads on the limitation of stumbling (page 187, col. 2, lines 1-17; and page 188, col. 1, lines 25-28).

Claim Rejections - 35 USC § 103

24. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

25. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

26. Claims 1-8, 10, 13-17, 19-22, 25-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bainton et al. as applied to claims 1-8, 10, 13-17, 20-22, 25-28 and 35-38 above, and further in view of Soll et al. (US Patent 5,655,028).

27. Bainton et al. teaches the study of motion of a population of flies that have been treated with a dopamine producing compound and cocaine and compares the specimen with a control population of flies. The effect on the central nervous system and brain of the flies is used to study responses to drug addiction (Bainton et al., page 187, col. 1, Background). The study is carried out using DIAS, a computerized imaging system that calculates parameters related to the motion of organisms. Bainton et al. however, do not

teach the specifics or architecture of DIAS. Soll et al. teach the components and architecture of DIAS that allow for the imagining of motion characteristics of organisms.

28. Claim 10 recites a sample identification mechanism to automatically identify each sample by assigning an identifier associated with a location of placement of the sample.

29. Soll et al. teach a computerized system which is connected to a microscope and video camera. The specimen sample placed under the microscope is identified by the video camera which translates the video data to the computer for digitization (Figures 1 and 2).

30. Claim 19 recites a specimen information input mechanism to input a number of samples configured to receive computer screen input by a user of numbers at least as high as 100.

31. Soll et al. teaches the analysis of over 100 frames taken from the digital image of moving specimens captured by the microscope and camera (Table 1, line 2).

32. Claim 29 recites a user interface comprising an input mechanism to allow users to input a specific central nervous system condition to be analyzed, an image collection input mechanism to specify the duration of time over which the image data is collected, the number of specimens to be assessed and an identification number for each specimen population to be tracked.

33. Soll et al. teaches a image acquisition system allowing the capture of successive images of a mobile object or specimen and converts the images into digital data which is stored in a database (col. 4, lines 14-24). The system allows a user to select from a menu parameters appropriate for the system being analyzed (col. 6, lines 1 to 5), time

elapsed (Table 1, line 7), and an identification number such as that shown in the "Title" or "Trail" of Table 1 (lines 1 and 2).

34. Claim 30 recites a computer screen which can list possible animal population from which the user can choose a specimen population using the input interface.

35. Soll et al. teach a computer screen and key board (Figure 2) which allow a user to define parameters related to a specific cell or organism (col. 4, lines 24-26) and for manual or computer assisted processing and reanalysis of the data (col. 4, lines 34 to 39).

36. Claims 31 and 32 recite an input interface comprising a keyboard and cursor control device such as a mouse.

37. Soll et al. teach a computerized system (Figure 2) which allows a user to use a keyboard and mouse to make selection from a visual display (col. 4, lines 46-56).

38. Claims 33 and 34 recites an input mechanism that allows a user to choose a specific central nervous system disease and enter a set of physical traits relating to the disease without specifying the central nervous system condition.

39. Soll et al. teach a system which allows a user to select from a menu of defined parameters those that are useful or appropriate to the particular mobile object and system being review (col. 6, lines 1-5 and lines 13-14).

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have implemented the features of DIAS as taught by Soll et al. (Soll et al., Abstract) during the study taught by Bainton et al. (Bainton et al., page 193, col. 2, "Locomor tracking system") to achieve the data for the central nervous

system of several specimens of flies. One of skill in the art would have been motivated to use the features DIAS in the fly study of Bainton et al. since Bainton et al. teaches the input and manipulation of data related to the central nervous system of flies. DIAS, as taught by Soll et al. provides the mechanism for input of parameters such as specific systems to be studied and parameters related to theses systems. Therefore, the invention as a whole would have been prima facie obvious, absent evidence to the contrary.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anna Skibinsky whose telephone number is (571) 272-4373. The examiner can normally be reached on 8 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on (571) 272-0811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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